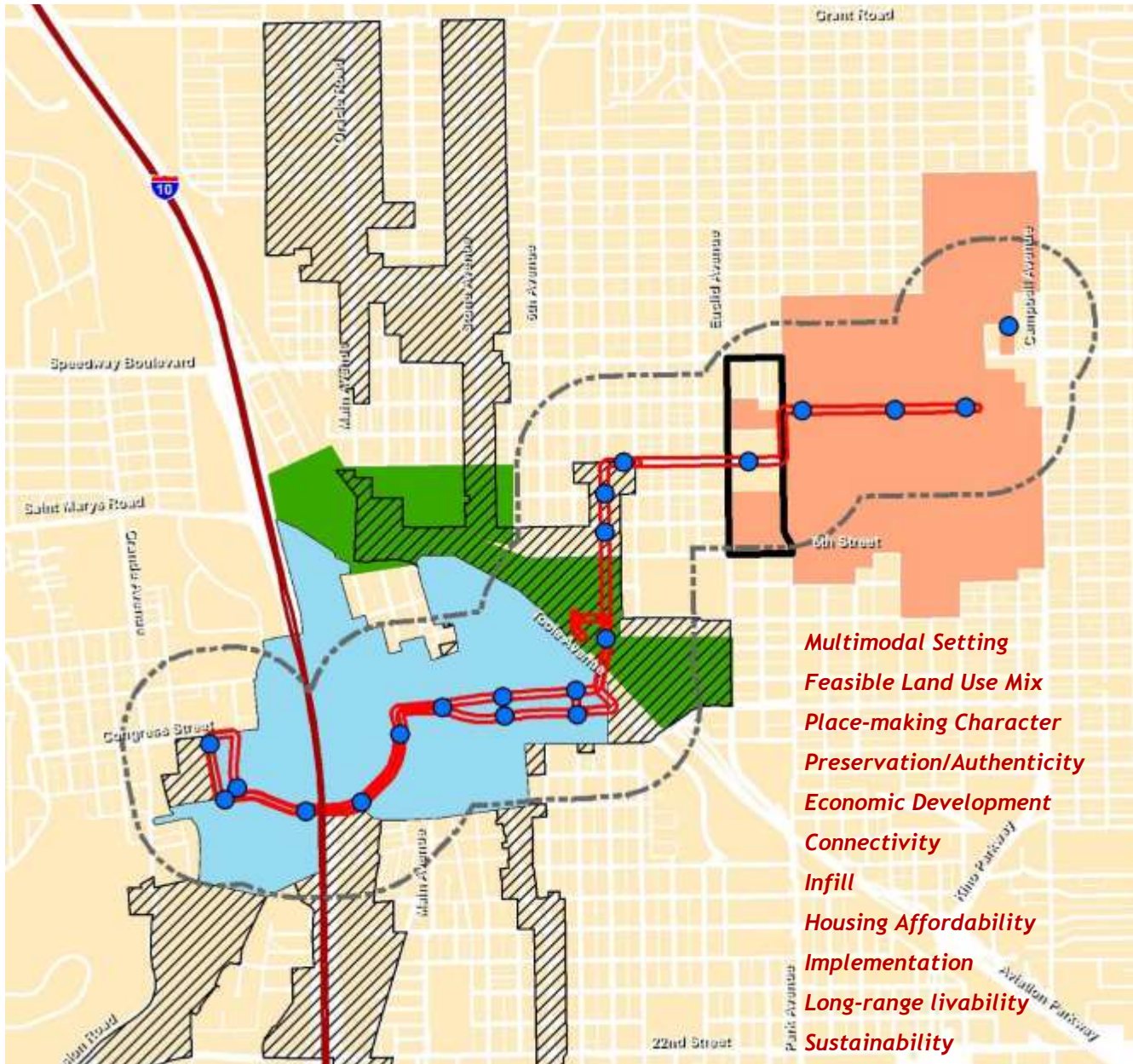


Eastern Terminus (Task 5)



Consultant:

The Planning Center
110 South Church, Suite 6320
Tucson, Arizona 85701
Voice: (520) 623.6146
Fax: (520) 622.1950
www.azplanningcenter.com

Linda Morales, AICP
Principal-in-Charge
lmorales@azplanningcenter.com



Sub-consultants:

Poster Frost Mirto, Inc
371 North Court Avenue
Tucson, Arizona 85701
Voice: (520) 882.6310
Fax: (520) 882.0725
www.posterfrostmirto.com

Corky Poster, AICP
Architect/Planner
cposter@posterfrostmirto.com

PSOMAS
333 E. Wetmore Road, Suite 450
Tucson, Arizona 85705
Voice: (520) 690.7811
www.psomas.com

Thomas P. McGovern PE, RLS, LEED AP
Engineer
tmcgovern@psomas.com

Urbsworks Inc.
3845 SW Condor Avenue
Portland, Oregon 97239
Voice: (503) 827.4155
urbsworks.com

Marcy McInelly, AIA, CNU
Architect
marcymcinelly@gmail.com

Shiels Obletz Johnsen
1140 11th Ave. Suite 500
Portland, Oregon 97205
Voice: (503) 242.0084
Fax: (503) 299.6769

Rick Gustafson, Urban Economics
Director of Operations Portland Streetcar Project
rgustafson@sojpdx.com



TABLE OF CONTENTS

Section	Page
Analysis And Recommendations For Eastern Area Terminus And Surroundings (Speedway Boulevard And Campbell Avenue) Diagnostic Report (Task 5)	2
Eastern Terminus Character Area Location	2
Neighborhoods	2
Neighborhood Associations	4
National Register Historic District	5
Site Opportunities And Constraints	7
Regional Transportation System, Multimodal Connectivity, Infrastructure And Parking	9
Utilities	16
Community Facilities	16
Major Property Owners	17
Existing Regulatory Framework	19

Analysis and Recommendations for Eastern Area Terminus and Surroundings (Speedway Boulevard and Campbell Avenue) Diagnostic Report (Task 5)

Eastern Terminus Character Area Location

The Eastern Terminus character area is located east of Mountain Avenue, north of 1st Avenue, west of Olsen Avenue and south of Adams Street (See *Exhibit 1: Eastern Terminus Character Area*). The streetcar segment that runs through the Eastern Terminus turns north on Warren Avenue and uses the Warren Avenue underpass to reach the Arizona Health Sciences Center and the University of Arizona Medical Center. It then turns east on Helen Street to reach its eastern terminus on Helen Street east of Warren Avenue. The Arizona Health Sciences Center (AHSC), which includes the University of Arizona Medical Center and other medical offices, facilities, laboratories, and classrooms, is located just north of the eastern terminus of the Streetcar line.

Neighborhoods

The Eastern Terminus includes the North University, Blenman-Elm, and Sam Hughes neighborhoods and their corresponding neighborhood associations.

North University

The majority of the Eastern Terminus character area lies within the North University neighborhood. The North University Neighborhood is roughly one-quarter of a square mile bounded by Speedway (south), Campbell Avenue (east), Elm Street (north), and Park Avenue (west). The historic neighborhood consists of approximately eight to twelve blocks. The area also includes the University of Arizona Health Network campus, UA Engineering, Law, Eller College, etc. University expansion continues north as far as Adams Street.

Blenman-Elm

Blenman-Elm neighborhood encompasses the area bounded by Speedway Boulevard on the south, Campbell Avenue on the west, Grant Road on the north, and Country Club Road on the east. The southern half of the neighborhood is laid out in a grid pattern resulting from subdivisions that occurred in the mid-1920s and early 1930s. Land uses in this part of the neighborhood are primarily low density, single-family uses, with medium-density residential uses occurring north of Adams Street between Tucson Boulevard and Country Club Road. Blenman Elementary School and three churches are located within this neighborhood area. Office and commercial uses occur along the Speedway Boulevard, Tucson Boulevard and Country Club Road frontages.

The northeast portion of the Blenman-Elm neighborhood, north of Seneca Street, consists of a grid pattern. Blocks are larger than those in the southern half and include a variety of lot sizes. Land uses are a mix of low- and medium-density residential uses with commercial and office activities on Grant and Country Club Roads.¹

Sam Hughes

The Sam Hughes neighborhood is a full square-mile neighborhood bounded by Speedway (north), Campbell Avenue (west), Broadway (south), and Country Club (east). A small portion of the Eastern Terminus, east of Campbell Avenue lies within the Sam Hughes neighborhood. The neighborhood is registered as a National Historic District and consists of a City adopted neighborhood plan. The neighborhood dates back to the early 1920s and is recognized as one of Tucson's more stable central-city residential areas.

In the early 1870s, Sam Hughes, whom the neighborhood is named after, helped to incorporate the City of Tucson, but refused the Mayorship and served as an alderman on the first city council.² Prominent features of the neighborhood include the Sam Hughes Elementary, Himmel Park and Library, proximity to the University of Arizona, senior citizen activity center, and a variety of shops and services. The neighborhood, which is bounded by four major streets, is known for its bike routes, recreational facilities, pleasant areas for walking and jogging, and generally quiet, settled environment.

The northwest quadrant is located immediately east of the University of Arizona campus. The Campbell Avenue edge between the two is a bright line that makes the clearest of all boundaries between the University of Arizona and its adjoining neighborhoods. Sam Hughes has worked hard to keep this boundary a clear edge. Few University-related developments cross Campbell Avenue. Around 6th Street and south, a few University-related facilities are located along the Campbell Avenue edge (Arid Land Studies, Sam Hughes Place, the Water Resources Research Center, and a new fraternity at the northeast corner of Campbell and 6th Street.

¹ City of Tucson Planning Department, Blenman Vista Neighborhood Plan, adopted October 27, 1986.

² Sam Hughes Neighborhood Association Website. 2012. Tucson Web Design
<<http://samhughes.org/index.php>>

Neighborhood Associations

The Eastern Terminus includes the North University, Blenman-Elm, and Sam Hughes neighborhood associations.

North University Neighborhood Association

The North University Neighborhood Association (NUNA) formed to provide meaningful and lasting relationships among neighbors, to establish communication among residents, to help keep the neighborhood safe, secure, and clean, to protect property values and to address general neighborhood concerns.³

Blenman-Elm Neighborhood Association

Blenman-Elm Neighborhood Association formed to provide open channels of communication among the residents of the Blenman-Elm neighborhood to make informed decisions on issues which affect the quality of life in this and other urban neighborhoods and to foster neighborhood improvement in order to preserve and protect the quality of life of the neighborhood's residents.⁴

Sam Hughes Neighborhood Association

The purpose of the Sam Hughes Neighborhood Association is to engage in charitable and educational activities and to promote programs that enhance the civic, social and cultural integrity of the Sam Hughes Neighborhood. The corporation is organized to engage exclusively in nonprofit activities for public charitable and common interest purposes within the meaning of section 501C-3 of the Internal Revenue Code of 1986 and of any amendments or successor provisions thereto.⁵

³ North University Neighborhood Association (NUNA) Bylaws. City of Tucson website
<http://cms3.tucsonaz.gov/files/hcd/bylaws/NORTH%20UNIVERSITY.pdf>

⁴ Blenman-Elm Neighborhood Association Bylaws. City of Tucson website
<http://cms3.tucsonaz.gov/files/hcd/bylaws/BLENMAN-ELM.pdf>

⁵ Sam Hughes Neighborhood Association Bylaws. City of Tucson website
<http://cms3.tucsonaz.gov/files/hcd/bylaws/SAM%20HUGHES.pdf>

National Register Historic District

Blenman-Elm Historic District (National; Listed 2003)

Blenman-Elm is a midtown historic district featuring the 14-acre garden resort, the Arizona Inn (1930), which is an individually-listed National Register property predating most of the development of the neighborhood. While 17 different architectural styles are represented within the Blenman-Elm neighborhood reflecting its 55-year historic period of development, it is the Ranch Style house and several of its sub-styles that characterizes the district. The Blenman-Elm district is Tucson's vanguard neighborhood for the local popularization of the Ranch Style house. The neighborhood has several homes designed by the notable Swiss-born Tucson architect Josias Thomas Joesler between the 1920s and 1950s.⁶

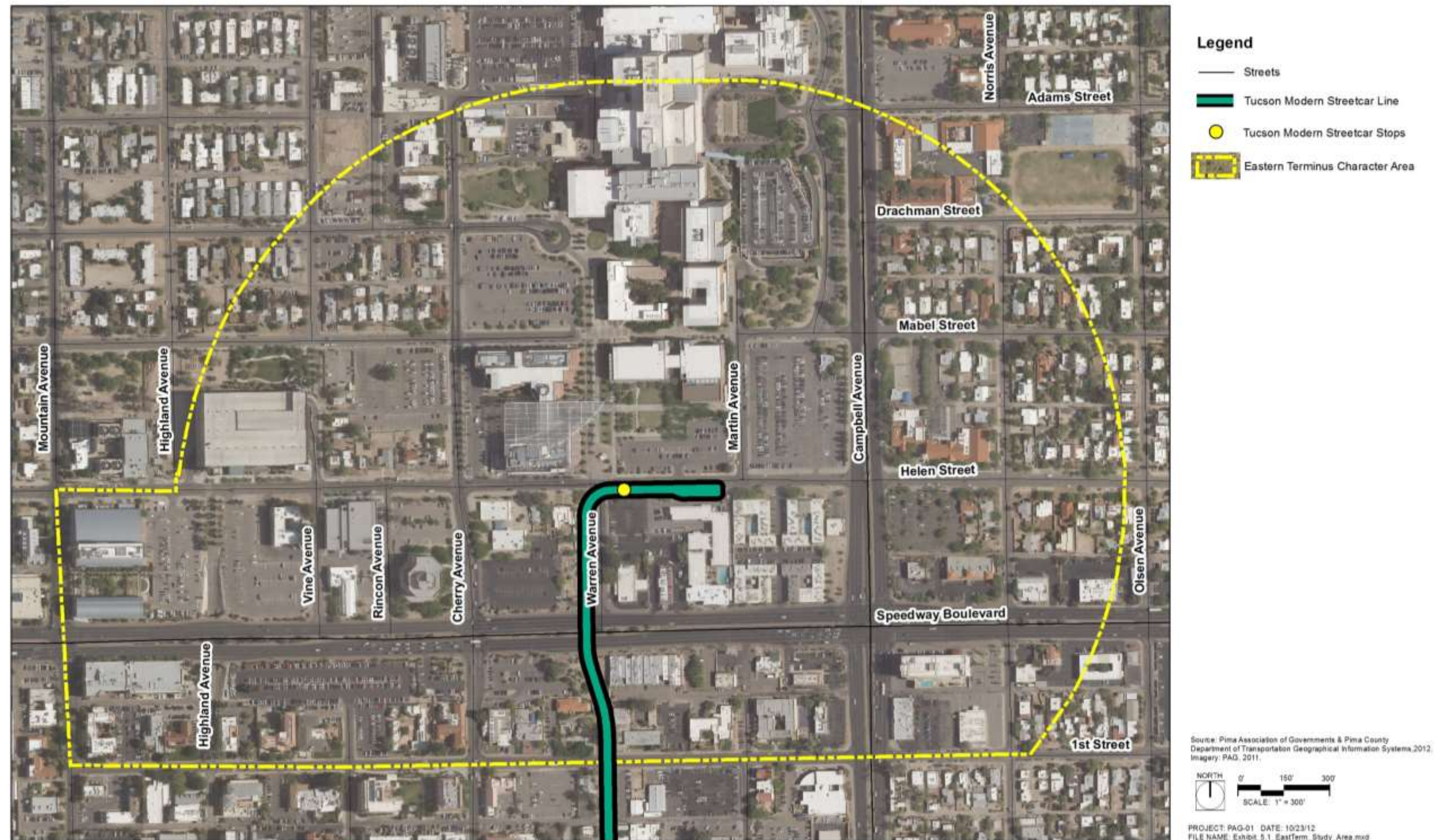
Sam Hughes Residential Historic District (National; Listed 1994; expanded 2000)

Located immediately to the east of the University of Arizona campus, the Sam Hughes Historic District is one of the best examples of an intact neighborhood from Tucson's early tourist growth period. This period, beginning in 1921, defines a turning point in Tucson's architectural history that would influence the City's development well into the modern period. The neighborhood is named after the well-known political and business leader Sam Hughes, who was instrumental in establishing a free public school system in Tucson. Major landmarks include East Third Street (now a popular bicycle route lined with palm and citrus trees), the Roy Place-designed Sam Hughes Elementary School and the 24-acre Himmel Park. While there are 16 architectural styles represented in the District including Ranch, International, Craftsman and Pueblo Revival, the majority of the buildings are constructed in the Spanish Eclectic style. The neighborhood was developed during the period of 1921 through the 1950's after which construction was very limited.⁷

⁶ Ryden, Don, Debora M. Parmiter and Doug Kupel. *National Register of Historic Places Registration Form for the Blenman-Elm Historic District*. On file at the Arizona State Historic Preservation Office, Phoenix, 2002.

⁷ Rumsey, Brian. *National Register of Historic Places Registration Form for the Sam Hughes Historic District*. On file at the Arizona State Historic Preservation Office, Phoenix, 1994.

Exhibit 1: Eastern Terminus Character Area



Site Opportunities and Constraints

Hydrology and Washes

As shown in *Exhibit 2: Eastern Terminus Opportunities and Constraints*, there are no existing 100-Year FEMA floodplains delineated within the Eastern Terminus character area. Estimated local (non FEMA) floodplains are shown on Exhibit 2 and require further study.

Vegetation

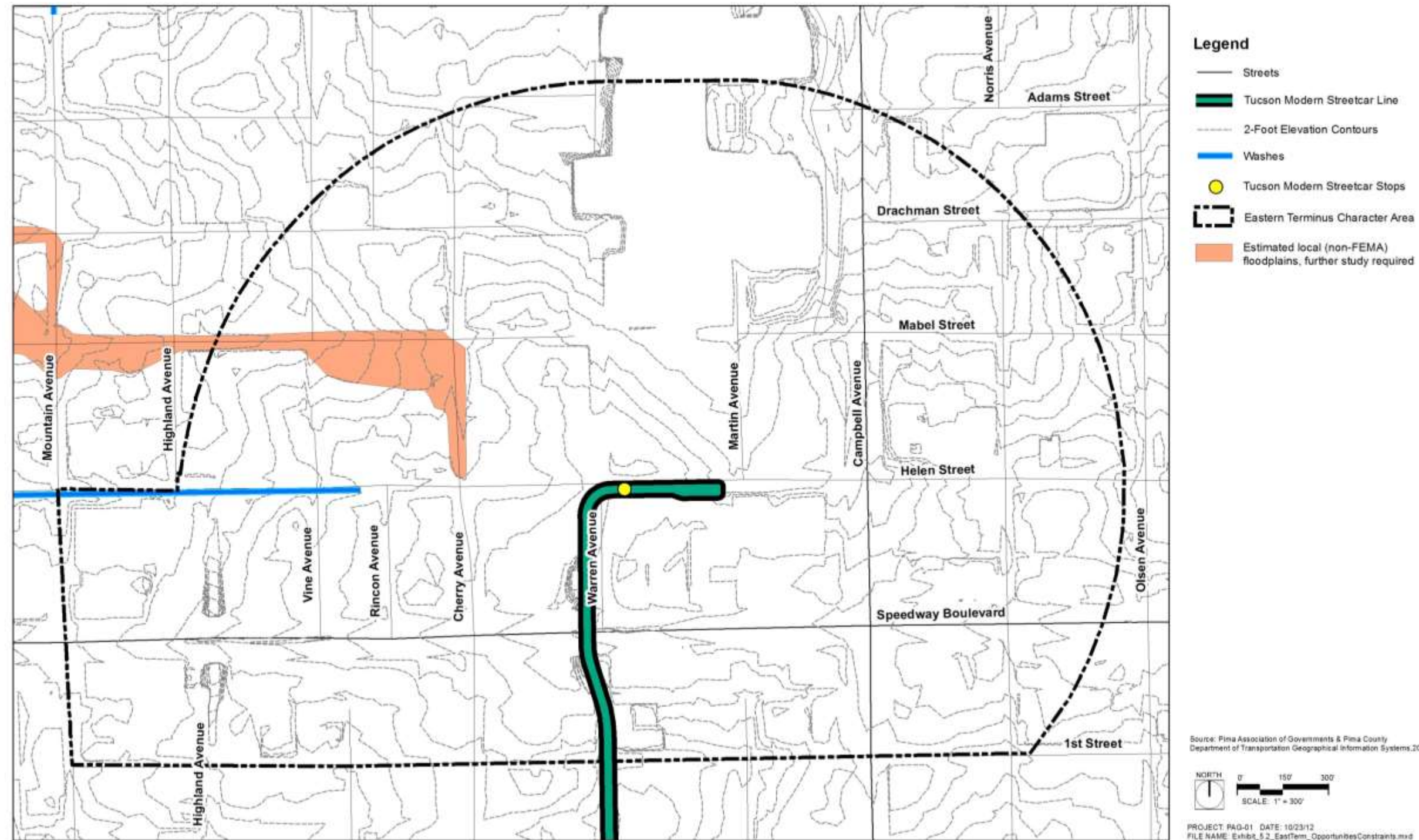
Pima County Xeroriparian Habitat

There is no existing Pima County Xeroriparian Habitat within the Eastern Terminus character area.

Vegetative Communities

The majority of the Eastern Terminus is classified under Agriculture/Developed.

Exhibit 2: Eastern Terminus Site Opportunities and Constraints



Regional Transportation System, Multimodal Connectivity, Infrastructure and Parking

The Eastern Terminus character area includes the intersection of Campbell Avenue and Speedway Boulevard. Campbell Avenue, a north-south major arterial, and Speedway Boulevard, an east-west major arterial, provide access to this character area. When the Tucson Modern Streetcar becomes operational, this character area will become a major activity node serving as the eastern gateway entrance to the University of Arizona.

Multimodal Transportation and Connectivity

As shown in *Exhibit 3: Eastern Terminus Regional Transportation System and Multimodal Connectivity*, the Eastern Terminus character area includes a number of existing bike routes. There are significant bicycle volumes in the area. According to the 2011 Regional Bicycle/Pedestrian Count Summary, the area at Helen Street and Mountain Avenue had the 3rd highest number of cyclists of any location included in the study. There were 906 cyclists in the combined peak periods, an 18% increase from 2010. At Warren Avenue and Mabel Road, there were 188 cyclists in the combined peak periods. The high bicycle volumes are likely to remain in the area due to its proximity to the University of Arizona. Further, bike share bicycles are available at the Highland Avenue parking garage in this area, which is an indication of current and future demand. Therefore, it is important to provide safe routes for bicycles, either on-street or via off-street paths.

Pedestrian counts were also collected in 2011. At Helen Street and Mountain Avenue, there were 633 pedestrians in the combined peak periods, the 9th highest volume of any location where data was collected. The area of Mabel Street and Warren Avenue had one of the lowest pedestrian counts in the University area with 385 pedestrians in the combined peak periods, but overall, the University area accounts for a significant percentage of all pedestrians counted in the study.

Although a complete sidewalk inventory is not available, sidewalks are available throughout much of the Eastern Terminus area and at the one proposed Streetcar stop in this segment. Availability of ADA accessible sidewalks should be verified to ensure that all users can access the Streetcar stop.

Existing Off-site Streets

As shown in *Exhibit 3: Eastern Terminus Regional Transportation System and Multimodal Connectivity*, the major off-site streets within the Eastern Terminus character area include: Campbell Avenue, designated a Gateway Arterial on the City of Tucson Major Streets and Routes, and Speedway Boulevard, designated an Arterial Street.

Campbell Avenue is a typical high volume 120-foot right-of-way arterial cross section, consisting of six travel lanes, a raised median with storage for turning vehicles and areas on each side for sidewalks, utilities, and street furniture. Seventeen feet are allotted to the outside travel lane to allow adequate space for bicycle traffic next to the curb.⁸

Speedway Boulevard is an arterial street. The maximum width of an arterial street shall be no more than six lanes in the mid-block, except where the additional lanes are designated for buses, bicycles, and high-occupancy vehicles. Where traffic volumes create the need for additional capacity, intersection modifications should be pursued prior to further widening.⁹

The Eastern Terminus of the Tucson Modern Streetcar is located on Helen Street east of Warren Avenue; both of which are designated as local streets.

Access Points

Campbell Avenue and Speedway Boulevard provide access to the Eastern Terminus character area.

Scheduled Roadway Improvements

There are no scheduled roadway improvements within the Eastern Terminus Study Area.

Bicycle and Bus Routes

Exhibit 3: Eastern Terminus Regional Transportation System and Multimodal Connectivity shows bicycle and bus routes. Both cyclists and pedestrians have access to the Warren Avenue underpass, which crosses under Speedway Boulevard, providing access from the north (and eastern terminus of the Streetcar line) to the University of Arizona. This underpass will also be used by the Streetcar once it is constructed.

There are also existing Sun Tran Bus and University of Arizona Cat Tran routes in the area. Most of the Cat Tran routes are located west of Warren Avenue. The Sun Tran routes run along the major arterials in the area (Campbell Avenue and Speedway Boulevard).

⁸ City of Tucson Major Streets and Routes Plan, January 10, 2000, Ordinance: 9340, page 15.

⁹ City of Tucson Major Streets and Routes Plan, January 10, 2000, Ordinance: 9340, page 12.

Overall, the multimodal transportation opportunities and connectivity are good throughout the segment, are encouraged with the Highland Avenue parking garage bike share location, and will be enhanced with the addition of the Streetcar.

The bike routes located within the Eastern Terminus include:

- Warren Avenue and Highland Avenue Shared Use Paths
- Drachman Street, Mabel Street, Ring Road, Helen Street, 1st Street, Cherry Avenue north of Speedway Boulevard, and Mountain Avenue south of 1st Street Residential Street Bicycle Routes
- Campbell Avenue, Speedway Boulevard, Cherry Avenue south of Speedway Boulevard, and Mountain Avenue north of 1st Street Bicycle Routes with Striped Shoulders

Infrastructure

The Warren Avenue Underpass provides a safe off-street connection for all cyclists and pedestrians under Speedway Boulevard, a major arterial in the Eastern Terminus area. Any deficiencies along the existing sidewalk network should be addressed in the City of Tucson ADA transition plan, and ADA standards should be met as construction is completed within the AHSC complex.

The Streetcar stop to be constructed in this area is expected to be accessible for all users and may require some improvements to ensure bicycle safety and provide for bike parking as needed. Additional vehicular parking lots and/or garages may be needed in this area in the future. A car-share program may be beneficial in this area, and the bike share program may be expanded.

Parking

Taken from the ParkWise website, Figure 1 shows the existing parking in the Eastern Terminus of the Streetcar alignment. There is limited existing on-street parking in the area, several surface parking lots and the Highland parking garage. Much of the parking is on the University campus, and the 1,570-space Highland parking garage is University owned and operated, but is open for public (paid) parking. Due to high parking volumes at the University and the possibility of travelers parking at the terminus in order to ride the Streetcar, it may be necessary to construct an additional parking structure in this area in the future.

The Arizona Health Sciences Center (AHSC), which includes the University of Arizona Medical Center and other medical offices, facilities, laboratories, and classrooms, is located just north of the eastern terminus of the Streetcar line. The AHSC has plans for new parking structures on-site, but those structures will be reserved for staff and hospital visitors (Arizona Health Sciences Center Traffic Study, Kimley-Horn and Associates, December 2012).

There are currently three parking garages (Northwest with 1,050 spaces, North with 905 spaces, and East with 638 spaces) and a number of surface parking lots. New buildings are planned to replace many of the surface parking lots, but a 2,000-space parking garage and an expansion to the East parking garage are planned to offset the loss of surface lot parking spaces.



Figure 1: Eastern Terminus Parking, ParkWise, City of Tucson

Park, Trails and Open Space

Exhibit 4 shows parks, trails and open space in the Eastern Terminus character area. The primary recreation and open space area inside this character area includes multipurpose recreation, drainage and open space areas built within the UA Medical Center (UMC) Campus area. These recreation and open space areas consist of approximately 6.69 acres. There are four multipurpose park areas, including:

- Highland Garage Park;
- UMC Open Space (near the entrance to the hospital);
- UMC Pedestrian Corridor located along the Warren Avenue underpass and Mabel Street, limited to pedestrian access only; and the
- UMC Open Space located behind the hospital at Drachman Street and Cherry Avenue.

Proposed Trails and Rights-of-Way

According to the Pima Regional Trail System Master Plan, a portion of the Mountain Avenue enhanced corridor lies within the Eastern Terminus. The Mountain Avenue Enhanced Corridor (EC008) covers a distance of three and three-quarter miles, north from the University of Arizona campus to the Rillito River Park. The south end of the corridor has been improved with several grade-separated and signalized at-grade crossings of Speedway Boulevard that allow members of the University community to gain access to the corridor. The section of Mountain Avenue from 2nd Street to Fort Lowell Road has been improved with features such as bicycle lanes buffered by a strip of textured pavement, pedestrian walkways, street lights, and landscaping.

Exhibit 3: Eastern Terminus Regional Transportation System and Multimodal Connectivity



Exhibit 4: Eastern Terminus Parks, Trails and Open Space



Utilities

Wastewater

Pima County Regional Wastewater Reclamation Department currently serves the Eastern Terminus Study Area. There are 8-inch sewer lines along the Streetcar Route on Helen Street and Warren Avenue: G-98 and I-85-43B, respectively. Warren Avenue also contains a 6-inch pipe, identification number G-87, north of Helen Street.

Wastewater

The Eastern Terminus is located within the Tucson Water Obligated Water Service Area with the exception of University Medical Center which has an assured water supply (AWS) as determined by the Arizona Department of Water Resources, but has a private water provider. Tucson Water has an assured water supply (AWS) designation from the State of Arizona Department of Water Resources (ADWR). An AWS designation means Tucson Water has met the criteria established by ADWR for demonstration of a 100-year water supply. It does not mean that water service is currently available for future development. A water master plan must be submitted for approval in order to receive water service at the time of development.

Community Facilities

Fire and Police Stations

The Eastern Terminus falls within the Tucson Fire District. There are no fire stations within the Eastern Terminus. The closest police station is the University of Arizona Police Station located directly adjacent to the southern edge of the Eastern Terminus at Campbell Avenue and 1st Street.

Hospitals

University Medical Center (UMC) is located within the Eastern Terminus at Campbell Avenue and Adams Street.

Schools

The Eastern Terminus falls within the Tucson Unified School District, however, no public K-12 schools exist within the Eastern Terminus. Saints Peter and Paul Catholic School is a private school located within the Eastern Terminus on the northeast corner of Campbell Avenue and Drachman Street. The University of Arizona campus encompasses a large portion of this character area.

Major Property Owners

Exhibit 5 shows major property owners within the Eastern Terminus character area. Table 1 provides acreage for each of these major property owner categories.

Table 1

Major Property Owners within the Eastern Terminus Character Area

Property Owner Category	Acreage
Arizona Board of Regents	58.59
Private	35.08
Fraternal Organizations	6.21
Our Saviors Evangelical Lutheran Church	4.57
University of Arizona Foundation	0.67

*Source: Pima County Department of Transportation
Geographic Information Systems, 2012.*

Exhibit 5: Eastern Terminus Property Ownership



Existing Regulatory Framework

2001 City of Tucson General Plan

According to the 2001 City of Tucson General Plan, the Streetcar Route is located within the Central Core growth area, known for its high-density development pattern and high economic activity. The City issues approximately 40 percent of the business licenses to businesses in the Central Core. For this reason, the streetcar was strategically located in this area to guide future urban growth into patterns that create a more livable community. Streetcar development and redevelopment will create a balance between economic and environmental quality, promote more efficient use of land and public infrastructure, reduce automobile dependence, better support alternate modes of transportation, and create safer and more attractive neighborhoods. The following goals and objectives for Streetcar development were derived from the major elements of the 2001 general plan, including:

- Drive economic growth and generate more public-private development (Economic Development Element)
- Improve transit service and offer easy connections for bus riders, bicyclists, and pedestrians (Circulation Element)
- Connect major activity centers such as the University of Arizona, the 4th Avenue Business District, Downtown Tucson and the historic Westside (Land Use and circulation Elements)
- Offer a sustainable transit option that will improve our environment and reduce congestion (Conservation, Rehabilitation and Redevelopment Element),
- Encourage a variety of quality housing and related services that include neighborhood revitalization, owner-occupied rehabilitation, home buyer opportunities, rental housing, transitional housing, and emergency housing (Housing Element)
- Expand multimodal connectivity to existing parks, trail and open space areas within the Streetcar Study Area (Parks, Recreation, Open Space and Trails Element)
- Continue to develop standards and guidelines to improve the streetscape for alternate modes of transportation (Community Character and Design Element)

Urban Character Areas (Greater than 15 dwelling units per acre)

The 2001 General Plan includes policy direction for Urban Character areas. These areas encourage development at densities greater than 15 dwelling units per acre. This designation identifies areas, which include or are planned for high-density residential and supportive uses. High-density residential uses, such as apartments, condominiums and town homes, are generally developed along major transportation corridors and close to activity centers, such as the University of Arizona, the Downtown area, and other commercial and employment generators. This land use pattern may also include a range of office, commercial, churches, public and private schools, parks and recreation areas, and public and semipublic land uses, as well as lower density residential uses.

The Eastern Terminus of the Tucson Modern Streetcar is located within the Urban Character Area designation as indicated in the Land Use Element of the City's 2001 General Plan.

Eastern Terminus Current Zoning

Exhibit 6 shows current zoning within the Eastern Terminus. Current zoning within the Eastern Terminus includes: R-1, R-2 and R-3 Residence Zones; C-1, 2, and 3 Commercial; and O-3 Office. As shown on *Exhibit 5: Eastern Terminus Property Ownership*, most of the area west of Campbell Avenue is owned by the Arizona Board of Regents. City zoning does not apply on Arizona Board of Regents property.

Most of this character area is developed and includes the University Medical Center and the University of Arizona campus. Commercial and office zoning (C-1, C-2, C-3 and O-3) are located near the Speedway Boulevard and Campbell Avenue intersection. Table 2 shows acreages for each zoning district.

Table 2

Eastern Terminus Character Area Current Zoning

Zoning District	Acreage
Residence R-1	61.32
Residence R-2	26.57
Residence R-3	33.77
Commercial C-1	17.63
Commercial C-2	0.48
Commercial C-3	1.32
Office O-3	1.05

Source: City of Tucson Unified Development Code.

Eastern Terminus Existing and Maximum Allowable Density

Existing Residential Density

Exhibit 7 shows existing residential density within this character area. Existing residential densities range between 5.1 and 10.0 du/ac east of Campbell Avenue in the Eastern Terminus character area, which falls within the Blenman-Elm Historic District. Density goes up to 5.1-20.0 du/ac in the northwestern portion and to 30.1-40.0 du/ac along the southern edge where UA Greek Housing makes up the majority of residential uses. This character area predominantly has non-residential uses associated with the University of Arizona and University Medical Center, including an abundance of surface parking lots. Most of the parcels in this area are exempt from zoning and therefore from the density provisions of each zone since they are owned by the Arizona Board of Regent.

Maximum Allowable Residential Density

Exhibit 8 shows maximum allowable residential density as per current zoning within this character area. West of Campbell Avenue, maximum allowable densities as per current zoning range from 5.1 – 10.0 dwelling units/acre to 40.1 to 60.0 dwelling units/acre. Most of the parcels in this area (shown in blue on the map) are exempt from zoning and therefore from the density provisions of each zone since they are owned by the Arizona Board of Regent.

East of Campbell Avenue and up to the block south of Helen Street, the maximum allowable density as per current zoning is 5.1 to 10.0 dwelling units/acre. South of this area and along Speedway, density ranges from 10.1-20.0 dwelling units/acre to 60.0 to 100.0 dwelling units/acre.

Exhibit 6: Eastern Terminus Current Zoning

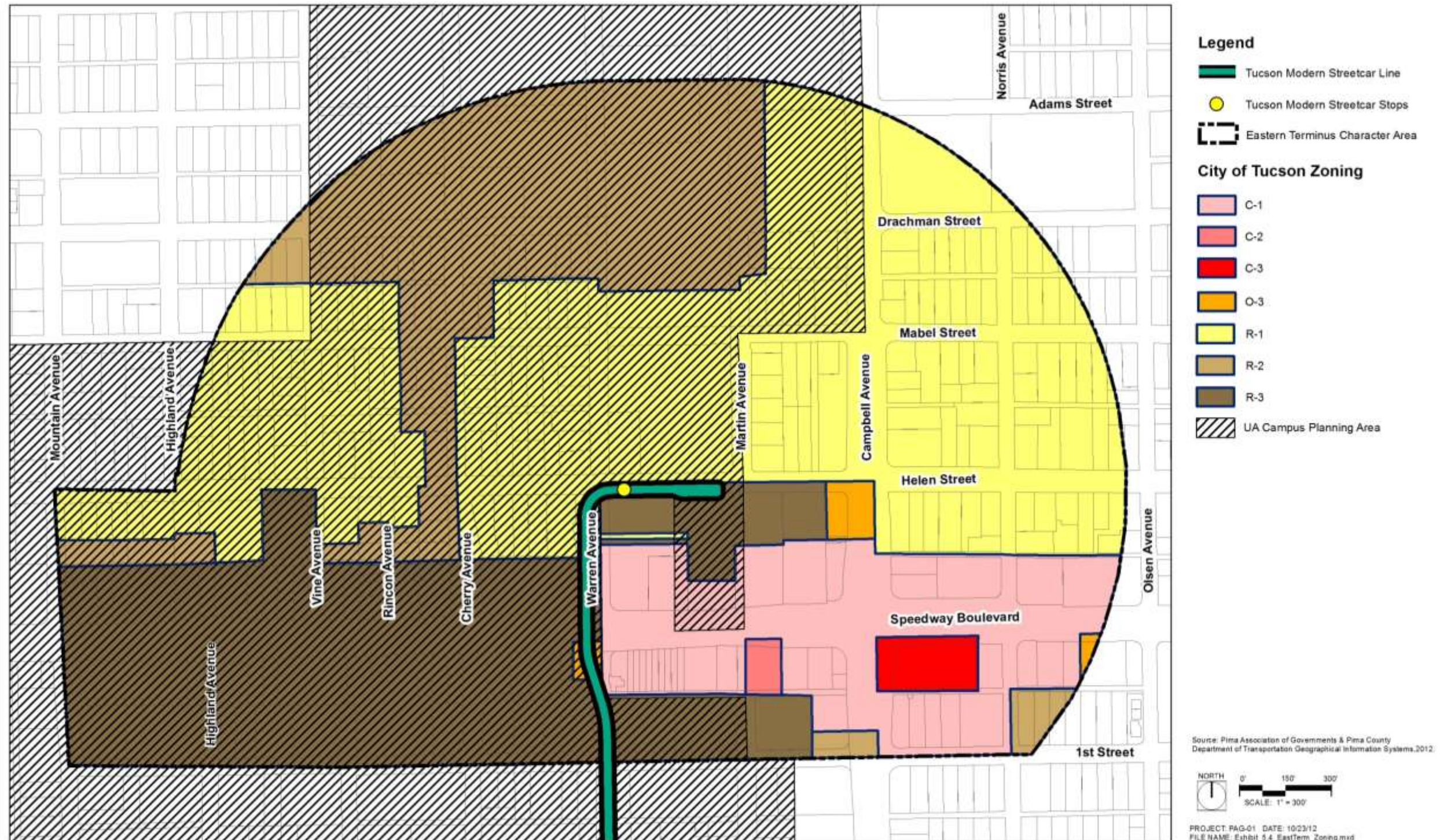


Exhibit 7: Eastern Terminus Existing Residential Density



Exhibit 8: Eastern Terminus Maximum Allowable Residential Density

